

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A vision catheter, comprising:
an image channel comprising one or more imaging fibers and a distal end and a proximal end, the distal end having a field of view of an imaged area; and
a vibration generator for vibrating the distal end, the vibration of the distal end causing the distal end to move relative to the imaged area and thus increase the field of view.
2. The vision catheter of Claim 1, wherein the imaging channel comprises an imaging cable and the one or more imaging fibers are optical fibers.
3. The vision catheter of Claim 1, further comprising one or more lenses located at the distal end for magnifying the imaged area.
4. The vision catheter of Claim 1, wherein the vibration generator comprises a metal ring and one or more electromagnetic coils, the metal ring being placed around the one or more imaging fibers, the electromagnetic coils being driven by electrical energy so as to vibrate the metal ring.
5. The vision catheter of Claim 1, further comprising one or more illumination fibers for illuminating the imaged area.
6. The vision catheter of Claim 5, further comprising a light source coupled to a light splitter for providing light to the one or more illumination fibers.
7. The vision catheter of Claim 1, wherein the proximal end outputs sensed image signals representing the imaged area, and the vision catheter further comprises an imaging device for receiving the sensed image signals from the proximal end.
8. The vision catheter of Claim 7, wherein the imaging device is coupled to a processor and monitor that is able to display the image.
9. The vision catheter of Claim 7, wherein the imaging device is one of a CCD, CMOS, pin hole, or photodiode camera.

10. A method for using one or more imaging fibers to provide imaging signals during a surgical procedure, the one or more imaging fibers having a distal end and a proximal end, the method comprising:

placing the distal end of one or more imaging fibers proximate to an area of which an image is desired; and

vibrating the distal end of the one or more imaging fibers so as to increase the field of view of the imaged area.

11. The method of Claim 10, further comprising placing one or more illumination fibers near the imaged area so as to illuminate the imaged area.

12. The method of Claim 10, further comprising locating an imaging device at the proximal end of the one or more imaging fibers for receiving the image signals.

13. The method of Claim 12, further comprising using a processor to process the image signals from the imaging device.

14. The method of Claim 13, wherein the processor is able to store or display the image.

15. An imaging system for use in surgical procedures, comprising:
an imaging channel comprising one or more fibers; and
a motion generator comprising first and second movement elements, the motion generator being operable to cause the first movement element to move relative to the second movement element, the first movement element being coupled to the one or more fibers.

16. The imaging system of Claim 15, wherein the first movement element comprises a metal ring.

17. The imaging system of Claim 16, wherein the second movement element comprises one or more electrical coils.

18. The imaging system of Claim 15, wherein at least one of the first or second movement elements comprises one or more piezoelectric crystals.

19. The imaging system of Claim 15, wherein at least one of the first or second movement elements comprises one or more microelectrical mechanical systems.

20. The imaging system of Claim 15, wherein the motion generator utilizes ultrasound or frequency modulation.